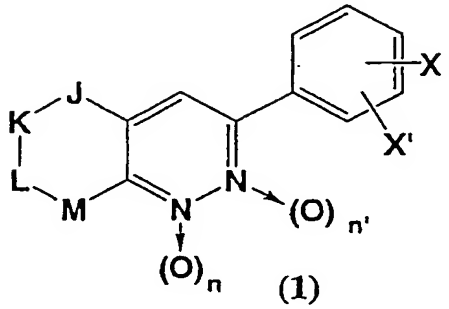
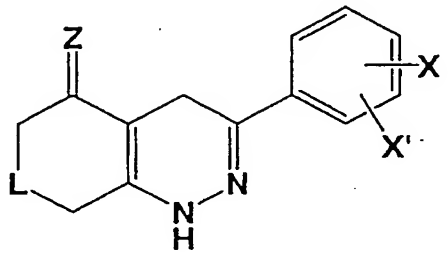
CLAIMS

Claims

1. An antitumor agent comprising a 3-phenyl-cinnoline analogue represented by the following general formula (1) or (2):



(1)

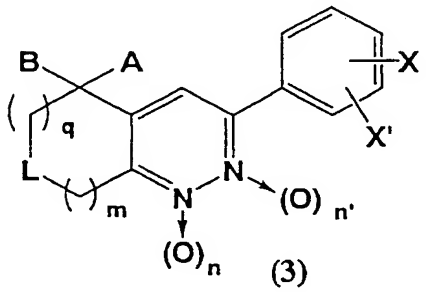


(2)

wherein J is A-C-B (C is a carbon atom); A is an O-Y group (O is an oxygen atom; Y is a hydrogen atom, a lower alkyl group which may be substituted by a phenyl group, a lower acyl group or an amino acid residue which may be protected); B is a hydrogen atom, a lower alkyl group, or a carbonyl group or a substituted imino group together with A; K is $(CH_2)_q$; L is N-W (N is a nitrogen atom) or W-C-W' (C is a carbon atom); W and W' each independently is a lower alkyl group which may have a substituent selected from a group consisting of a hydroxyl group, a lower alkoxyl group and a phenyl group, a phenyl group, a carboxyl group, a lower alkoxycarbonyl group or a hydrogen atom; M is $(CH_2)_m$, or J-K-L-M is C(O-Y)=CH-C(W)=CH (Y and W have the same meanings hereinabove); Z is an oxygen atom or N-Q (Q is an amino group, a lower alkylamino group, a hydroxyl

group or a lower alkoxyl group); X and X' each independently is a lower alkyl group, a lower alkoxycarbonyl group, a lower acylamino group, a lower alkoxyl group, a halogenated lower alkyl group, a nitro group, a cyano group, a halogen atom or a hydrogen atom; m and q each independently is an integer of 0 to 3; and n and n' each independently is 0 or 1, or a physiologically acceptable salt thereof as an active ingredient.

2. The antitumor agent according to claim 1 wherein the 3-phenyl-cinnoline analogue is a compound represented by the following general formula (3):



(3)

wherein A is O-Y group (Y is a hydrogen atom, a lower alkyl group which may be substituted by a phenyl group, a lower acyl group or an amino acid residue which may be protected); B is a hydrogen atom, a lower alkyl group, or a carbonyl group or a substituted imino group together with A; L is N-W or W-C-W'; W and W' each independently is a lower alkyl group which may have a substituent selected from a group consisting of a hydroxyl group, a lower alkoxyl group and a phenyl group, a phenyl group, a carboxyl group, a lower

alkoxycarbonyl group or a hydrogen atom; X is a lower alkyl group, a lower alkoxycarbonyl group, a lower acylamino group, a lower alkoxyl group, a trifluoromethyl group, a nitro group, a cyano group or a halogen atom; X' is a lower alkyl group, a lower alkoxycarbonyl group, a lower acylamino group, a lower alkoxyl group, a trifluoromethyl group, a nitro group, a cyano group, a halogen atom or a hydrogen atom; m and q each independently is an integer of 0 to 3; and n and n' each independently is 0 or 1.

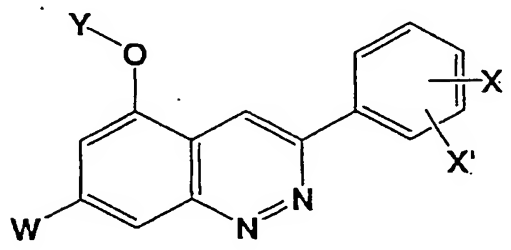
3. The antitumor agent according to claim 2, wherein B is a hydrogen atom; L is W-C-W'; W and W' each independently is a lower alkyl group which may have a substituent selected from a group consisting of a hydroxyl group, a lower alkoxyl group and a phenyl group, or a hydrogen atom; X is a 3-trifluoromethyl group, a 3-nitro group, a 3-cyano group or a 3-bromo group; X' is a hydrogen atom; m and q each individually is 1; n is 0 or 1; and n' is 0.

4. The antitumor agent according to claim 3, wherein W and W' each independently is a hydrogen atom or a lower alkyl group, and X is a 3-trifluoromethyl group.

5. The antitumor agent according to claim 2, wherein Y is a glycyl group, an alanyl group, a valyl group or an α-glutamyl group; B is a hydrogen atom; L is H-C-CH_3; X is a 3-trifluoromethyl group; X' is a hydrogen atom; m and q each individually is 1; n is 0

or 1; and n' is 0.

6. The antitumor agent according to claim 1, wherein the 3-phneyl-cinnoline analogue is a compound represented by the following general formula (4):



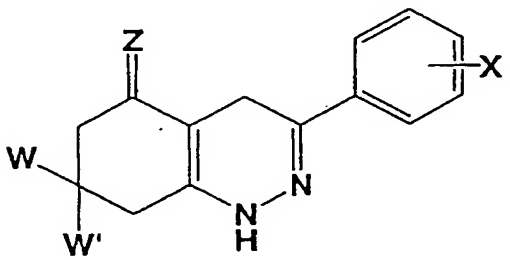
(4)

wherein X and X' each independently is a lower alkyl group, a lower alkoxycarbonyl group, a lower acylamino group, a lower alkoxyl group, a trifluoromethyl group, a nitro group, a cyano group, a halogen atom or a hydrogen atom; Y is a lower alkyl group which may be substituted by a phenyl group, a lower acyl group or a hydrogen atom; and W is a lower alkyl group which may have a substituent selected from a group consisting of a hydroxyl group, a lower alkoxyl group and a phenyl group, a phenyl group, a carboxyl group, a lower alkoxycarbonyl group or a hydrogen atom.

7. The antitumor agent according to claim 6, wherein X is a trifluoromethyl group, a nitro group, a cyano group or a halogen atom; X' is a hydrogen atom; and W is a lower alkyl group which may have a substituent selected from a group consisting of a hydroxyl group, a lower alkoxyl group and a phenyl group.

8. The antitumor agent according to claim 7, wherein X is a 3-trifluoromethyl group, a 3-nitro group, a 3-cyano group or a 3-halogen atom; and W is a non-substituted lower alkyl group.

9. The antitumor agent according to claim 1 wherein a 3-phenyl-cinnoline analogue is a compound represented by the following general formula (5):



(5)

wherein W and W' each independently is a hydrogen atom or a lower alkyl group; X is a halogenated lower alkyl group; Z is an oxygen atom or N-Q; Q is an amino group, a lower alkylamino group, a hydroxyl group or a lower alkoxyl group.

10. The antitumor agent according to claim 9, wherein W is a hydrogen atom or a methyl group; W' is a hydrogen atom or a methyl group; X is a 3-trifluoromethyl group; and Z is an oxygen atom.

11. The antitumor agent according to claim 9, wherein W is a hydrogen atom or a methyl group; W' is a hydrogen atom or a methyl group; X is a 3-trifluoromethyl group; and Z is $N-NH_2$.

12. The antitumor agent according to claim 1 wherein the 3-phenylcinnoline analogue is 7-methyl-3-

(3-trifluoromethyl)-7,8-dihydro-6H-cinnolin-5-one, 7-methyl-3-(3-trifluoromethyl)-5,6,7,8-tetrahydrocinnolin-5-ol, 7-methyl-3-(3-trifluoromethylphenyl)cinnolin-5-ol, 7-methyl-1-oxy-3-(3-trifluoromethyl)-5,6,7,8-tetrahydrocinnolin-5-ol, 5-glycyloxy-7-methyl-3-(3-trifluoromethyl)-5,6,7,8-tetrahydrocinnoline, 5-(L-alanyl)oxy-7-methyl-3-(3-trifluoromethyl)-5,6,7,8-tetrahydrocinnoline, 5-(L-valyl)oxy-7-methyl-3-(3-trifluoromethyl)-5,6,7,8-tetrahydrocinnoline, 5-(L-α-glutamyl)oxy-7-methyl-3-(3-trifluoromethyl)-5,6,7,8-tetrahydrocinnoline.

13. A cell proliferation inhibitor comprising the 3-phenyl-cinnoline analogue according to any one of claims 1 - 12 or the physiologically acceptable salt thereof as an active ingredient.

14. The 3-phenyl-cinnoline analogue according to any one of claims 1 - 12 or the physiologically acceptable salt thereof, proviso that a compound wherein Z is an oxygen atom is excluded.